

What is claimed is:

1. An internet network connecting and roaming system providing internet communication service to a data communication terminal of a user moving indoors or outdoors, using an outdoor wireless internet network including an antenna, a router and a location register, and an indoor network including an indoor gateway connectable with an internet network, the system comprising:

a data communication terminal that includes an indoor wireless connection module and stores registered indoor system ID information, so that the data communication terminal may be connected with the indoor network if the registered indoor system ID information is received and by connecting with the outdoor wireless internet network if the registered indoor system ID information is not received;

an indoor gateway that includes an indoor wireless connection module therein, broadcasts the indoor system ID information, makes wireless communications with the data communication terminal through the indoor wireless connection module, and is connected with the internet network via a wire;

a location register that stores location information of the data communication terminal received through the indoor network or outdoor wireless internet network; and

a router that determines the location of the data communication terminal stored in the location register and provides roaming of voice/data signals provided to the user by selecting one of the indoor and the outdoor networks in accordance with the determined location of the data communication terminal.

2. The internet network connecting and roaming system according to claim 1, wherein the data communication terminal compares the received indoor system ID information with the stored indoor system ID information, and sets its own mode to one of an indoor communication mode and an outdoor communication mode depending whether the received indoor system ID information is equal to the stored indoor system ID information.

3. The internet network connecting and roaming system according to claim 1, wherein one or more items of the indoor system ID information are registered in the data communication terminal.

4. The internet network connecting and roaming system according to claim 1, wherein the data communication terminal informs the location register that the terminal is located indoors by registering its location into the location register using a mobile IP if the registered indoor system ID information is received, and the data communication terminal informs the location register that the terminal is located outdoors by storing locational area information in the location register if the registered indoor system ID information is not received.

5. The internet network connecting and roaming system according to claim 4, wherein the data communication terminal switches its connection from the indoor network to the outdoor wireless internet network when it is registered into and authenticated by the location register that the location of the terminal registered into the location register has been changed from the indoors to the outdoors while making a call, or switches its connection from the outdoor wireless internet network to the indoor network when it is registered into and authenticated by the location register that the location of the terminal has been changed from the outdoors to the indoors.

6. The internet network connecting and roaming system according to claim 1, wherein the location register is one of a home agent and a foreign agent.

7. The internet network connecting and roaming system according to claim 1, wherein the indoor gateway is one of a home gateway and an IAD.

8. The internet network connecting and roaming system according to claim 1, wherein the indoor wireless connection module is a Bluetooth module.

9. The internet network connecting and roaming system according to claim 1, wherein the indoor wireless connection module is a wireless LAN connection module.

10. The internet network connecting and roaming system according to claim 9, wherein the indoor gateway is an internet communication equipment connected with either a wired or wireless LAN.

11. The internet network connecting and roaming system according to claim 1, wherein the indoor wireless connection module is a wireless packet communication connection module.

12. An internet network connecting and roaming method for providing internet communication service to a data communication terminal of a user moving indoors or outdoors using an outdoor wireless internet network including an antenna, a router and a location register, and an indoor network including an indoor gateway connectable with an internet network, the method comprising:

a first step of providing the user with a communication service by connecting with the outdoor wireless internet network when the user is located outdoors;

a second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register;

a third step of going through authentication of an indoor location of the data communication terminal by the location register and storing the indoor location into the location register if it is determined in the second step that the two of ID information are equal to each other;

a fourth step of connecting with the internet network by switching connection of the data communication terminal from the outdoor wireless internet network to the indoor gateway and making wireless communications through the indoor gateway and an indoor wireless connection module;

a fifth step of, when the data provided from the internet network in accordance with location information stored in the location register are transferred to the indoor gateway, supplying the data communication terminal with the data through the indoor gateway and the indoor wireless connection module;

a sixth step of going through authentication of an outdoor location of the data communication terminal by the location register and storing the outdoor location into the location register when the indoor system ID information is not received; and

a seventh step of switching the connection of the data communication terminal from the indoor gateway to the outdoor wireless internet network and performing the first step

again.

13. The internet network connecting and roaming method according to claim 12, wherein the indoor location information stored in the location register including the indoor system ID information is updated.

14. The internet network connecting and roaming method according to claim 12, wherein the second step includes the step of comparing a plurality of indoor system ID informations stored in the location register with the received indoor system ID information and determining whether the received indoor system ID information is identical to any one of the stored indoor system ID informations.

15. The internet network connecting and roaming method according to claim 14, wherein the indoor wireless connection module is housed in the data communication terminal and the indoor gateway, respectively.

16. The internet network connecting and roaming method according to claim 12, wherein the indoor wireless connection module is a Bluetooth module.

17. The internet network connecting and roaming method according to claim 12, wherein the indoor wireless connection module is a wireless LAN connection module.

18. The internet network connecting and roaming method according to claim 17, wherein the indoor gateway is an internet communication equipment connected with either a wired or wireless LAN.

19. The internet network connecting and roaming method according to claim 12, wherein the indoor wireless connection module is a wireless packet communication connection module.

20. The internet network connecting and roaming method according to claim 12, wherein the second step is performed in the course of the internet communication service.

21. The internet network connecting and roaming method according to claim 12, wherein the second step is performed after completion of the internet communication service.

1. The internet network connecting and roaming method according to claim 12, wherein the second step is performed after completion of the internet communication service.